Claims

1- Calcium phosphate in the form of granules showing an x-ray diffraction pattern of hydroxyapatite, characterized by the fact that at least 90% of the particles are larger than 10 microns and 90% of the particles are smaller than 300 microns, and preferably smaller than 260 microns.

2- Phosphate according to claim 1, characterized by the fact that the size of the granules expressed by the median diameter (d_{50}) is between 100 μm and 250 μm and preferably between 150 μm and 190 μm.

3- Phosphate according to claim 1, characterized by the fact that the apparent density (noncompressed) of the granules is at least 0.6 and is preferably situated between 0.6 and 1.0, and still more preferentially between 0.68 and 0.72.

4- Phosphate according to claim 1, characterized by the fact [that] the apparent density (compressed) of the granules is at least 0.7 and is preferably between 0.7 and 1.1, and still more preferentially between 0.76 and 0.82.

5- Phosphate according to claim 1, characterized by the fact that it advantageously has a BET specific surface of between 10 and 100 m^2/g and preferably between 50 and 80 m^2/g.

6- Phosphate according to claim 1, characterized by the fact that it has good flow properties.

7- Phosphate according to claim 6, characterized by the fact that is has a flow index measured at any moment greater than 10.

8- Phosphate according to claim 1, characterized by the fact that it has good compressibility characteristics by direct compression.

9- Phosphate according to claim 8, characterized by the fact that it has the following compressibility profile:

- from 15 to 40 KPa for a compression of 30 KN,
- from 10 to 25 KPa for a compression of 20 KN,
- from 3 to 10 KPa for a compression of 10 KN.

10- Phosphate according to claim 1, characterized by the fact that it has a rate of disintegration in water of less than 60 seconds, preferably less than 25 seconds and still more preferentially between 5 and 20 seconds.

11- Phosphate according to claim 1, further characterized by the fact that it conforms to the following formula:

$Ca_{5-x}(PO_4)_{3-x}(HPO_4)_x(OH)_{1-x}$ (I)

in said formula, x varies between 0 and 1 and preferably between 0.1 and 0.5.

12- A preparation process for a calcium phosphate in the form of granules showing a hydroxyapatite x-ray diffraction pattern described in one of claims 1 to 11, characterized by the fact that it comprises treating a brushite dicalcium phosphate suspension having a particle size such that 90% of the particles are smaller than 300 microns, and preferably smaller than 260 microns, and 90% of them are larger than 10 microns, by means of a basic solution, and keeping the pH at least at 7.0, for a period of time sufficient to permit the transformation of brushite calcium phosphate into hydroxyapatite calcium phosphate.

13- The process according to claim 12, characterized by the fact that the size of the particles of brushite dicalcium phosphate is such that the median diameter (d_{50}) is between 100 μm and 250 μm and preferably between 150 μm and 190 μm.

14- The process according to claim 12, characterized in that the base used is chosen from among: NaOH, KOH, NH_4OH.

15- The process according to claim 12, characterized by the fact that the pH of the hydrolysis reaction of the brushite dicalcium phosphate with an aqueous solution is kept constant between 7.0 and 10.0 and preferably between 8.0 and 8.5.

16- The process according to claim 12, characterized by the fact [that] the reaction temperature is higher than ambient temperature, preferably higher than 50°C and still more preferentially between 60 °C and 100 °C.

17- The process according to claim 16, characterized by the fact [that] the reaction temperature is situated at approximately 90 °C.

18- The process according to claim 12, characterized by the fact that the base quantity used is such that it represents 80 to 110% of the stoichiometric quantity expressed with respect to the brushite calcium phosphate.

19- The process according to claim 12, characterized by the fact that the aqueous suspension is heated to the chosen reaction temperature [and] then the base is introduced while regulating the pH.

20- The process according to claim 12, characterized by the fact that first the base is added so as to regulate the pH [and] then the medium is heated to the chosen reaction temperature.

21- The process according to one of the claims 19 and 20, characterized by the fact that the basic solution is added in a progressive manner, i.e., in proportion to the progression of the reaction while keeping the pH value in the predefined zone.

22- The process according to claim 12, characterized by the fact that the hydroxyapatite calcium phosphate is separated from the aqueous solution, preferably by filtration or centrifugation.

23- The process according to claim 12, characterized by the fact that the hydroxyapatite calcium phosphate is dried at a temperature between 80 and 120 °C and preferably approximately 110 °C.

24- Calcium phosphate in the form of granules showing an x-ray diffraction pattern of hydroxyapatite obtained according to the process described in one of claims 12 to 23.

25- Use of the hydroxyapatite calcium phosphate in the form of granules according to one of claims 1 to 11 and 24 as sources of phosphate and of calcium and/or excipients in tablets.

26- Use according to claim 25, characterized by the fact that the tablets are obtained by direct compression.

27- Tablets characterized by the fact that they comprise hydroxyapatite calcium phosphate in the form of granules according to one of claims 1 to 11 or 22.

28- Tablets according to claim 27, characterized by the fact that they comprise hydroxyapatite calcium phosphate at a rate of 10% to 100% of the weight of the matrix, and preferably representing at least 80% and still more preferentially at least 90% of the weight of the matrix.

29- Tablets according to claim 25, characterized by the fact that they also comprise an active ingredient in an amount of between 0.001 and 95% by weight of the total composition.

30- Tablets according to claim 27, characterized by the fact that they also comprise a lubricant, notably magnesium stearate in a content of approximately 0.5% by weight.

31- Tablets according to claim 27, characterized by the fact that they also comprise a disintegrating agent, notably starch or croscarmellose sodium in an amount of 5 to 10% by weight.

32- Tablets according to one of claims 27 to 31, characterized by the fact that they have a friability of less than 1%.

33- Tablets according to one of claims 27 to 32, characterized by the fact that they have a disintegration time of less than 1 minute.